a year shall have passed, he should wear a pair of boots. If the child come under treatment at a later age, tenotomy is necessary, followed by reposition and application of a plaster boot, which is changed every three or four weeks until the foot is in its proper position; after that a boot with a stiff ankle and upper, together with a thick sole. In twelve patients Phelps' operation was done with good results, yet in a majority of them the club-foot altered to a splayed foot; only one of the patients was an adult. In extreme degrees of club-foot, as in adults, the writer is inclined to order a well-formed boot, as the results of operation upon the bones here are not encouraging, and as the majority of such patients walk quite well.—*Ugeskrift for Læger*, R. 4, Bd. XXVI, S. 503.

FRANK H. PRITCHARD (Norwalk, Ohio).

GYNÆCOLOGICAL.

I. The Technique of Total Extirpation of the Fibromatous Uterus. By GEORGE M. EDERBOHLS, M.D. (New York).

Place the patient in the lithotomy position.

Thoroughly disinfect the vagina.

Disinfect the uterine cavity, as far as possible in each individual case, by means of superficial curetting and irrigation with 1–2000 sublimate solution.

Pack the uterine cavity moderately full of sublimate gauze, 1–100.

Pack the vagina *tightly* with sublimate gauze, 1–1000.

Make no vaginal incisions; do none of the cutting from below.

Now place the patient in the Trendelenburg posture.

Open the abdomen above the pubis by an incision just large enough to permit of delivery of the entire tumor.

Given a tumor weighing not above four kilogrammes, with healthy tubes and ovaries, proceed as follows:

Eventrate the tumor.

Circumscribe two peritoneal flaps by two transverse incisions of the peritoneum, one on the anterior, the other on the posterior

surface of the tumor mass, each incision extending from one broad ligament across to the other. These peritoneal flaps should be large enough to easily cover the defect in the pelvic floor left after removal of the uterus.

Strip the peritoneal flaps from the surface of the uterus, carrying the bladder and ureters forward, out of harm's way, with the anterior flap.

Tie the uterine arteries on either side by a subperitoneal mass ligature of catgut, carried well down to, but not into the vagina. The distention of the vagina by the gauze packing makes this an easy matter.

Tie off the broad ligaments, outsides of the tubes and ovaries, by two further catgut ligatures on either side.

Cut out the entire uterus, tubes and ovaries, in one piece, between the ligatures.

Cut short the six ligatures.

Unite the peritoneal flaps by a transverse, running *Lembert* suture of catgut, extending from the stump of one infundibulo-pelvic ligament to that of the other, carefully applied so as to securely close the peritoneal cavity and turn all ligatures down into the vagina.

Close the abdominal wound.

Again place the patient in the lithotomy position.

Remove the gauze packing from the vagina and apply a loose dressing of gauze in such a manner as to drain the supravaginal subperitoneal space.

If the ovaries or tubes present evidences or suspicion of containing infectious material, tie off and remove them the first thing after opening the abdomen.

If the tumor extend above the umbilicus, weighing more than about four kilogrammes, pass a rubber ligature around the cervical part, after stripping back the peritoneal flaps, and amputate the bulk of the tumor. Cauterize the cervical canal with the Pacquelin or a tablet of corrosive sublimate, and remove the cervix in the manner described above.

If multiple fibromata, or intra-ligamentary fibromata, fill the pelvis, make room by enucleating the fibromata most in the way, and proceed as above.

The technique advocated is believed to possess the following advantages:

The danger of infection from the uterus or vagina is entirely avoided or at least minimized.

The uterine arteries are secured with ease and certainty.

The operation is practically bloodless.

The closure of the peritoneum is as perfect as can be made and no foreign body is left in the cavity.

The after-treatment required is practically nil.—*Proceedings of the Pan-American Medical Congress, Author's Abstract.*

II. Ureteral Fistula After Vaginal Hysterectomy, Resulting Pyonephrosis, Nephrectomy; Recovery. By Dr. L. PICQUÉ (Paris). The author reports to the Paris Society of Surgery the following case: The patient, a woman, thirty-three years of age, had been subjected to vaginal hysterectomy by M. Richelot for the relief of salpingitis. Recovered from the operation, but with an ureteral fistula. Four months later she came under the reporter's care on account of pyonephrosis on the right side, referable to infection from the injured ureter. Her condition continued to become more urgent, and at the end of two months lumbar nephrectomy was done. The removal of the kidney was done without accident, and the after-course of the healing was without complication. Section of the kidney showed its substance to have become transformed into multiple foci of pus which communicated with each other, while abundant pus escaped when the pedicle was cut. Subsequent examinations show the cure to be permanent and her general health to remain excellent.—*Bull. et Mém. de la Soc. de Chirurg.*, de Paris, 1893, t. XIX, No. 6, p. 429.

III. The Treatment of Uretero-vaginal Fistula. By Dr. M. BAZY (Paris). The author presents a critical communication

to the *Société de Chirurgie* of Paris, based upon a case reported to that society by Chaput, in which a uretero-vaginal fistula had been relieved by turning the ureter into the sigmoid flexure of the colon. In Chaput's case the left ureter had been wounded in the course of an incomplete vaginal hysterectomy for the relief of a suppurative salpingitis. The opening into the ureter was at a distance from the bladder, and was surrounded by much indurated tissue. Stimulated by the experimental work of Harvey Reed, reported in the ANNALS OF SURGERY, September, 1892, Chaput determined to adopt a similar method in his case, and accordingly operated September 13, 1892, the fistula having existed for one year. The abdominal cavity was opened by a left lateral incision, extending from the middle of Poupart's ligament outward to the anterior superior spine of the ilium, and thence vertically upwards for some distance; then the large intestine having been carried outwards, the posterior peritoneum was incised for a distance of ten centimetres parallel to the insertion of the mesentery of the large intestine along the iliac fossa. By stripping up the peritoneum toward the vertebral column the ureter was sought for, and after some difficulty identified. It was then severed, and its free end inserted into the sigmoid flexure in the following manner:

The orifice of the ureter was placed in contact with the left posterior face of the gut, so that the two organs met at an acute angle, the apex being downward. Then a row of sutures united the serosa along the posterior half circumference of the ureter and the still intact gut. Then the intestine was incised to the extent of and in a direction corresponding to that of the ureteral orifice, and a row of sutures placed so as to unite the mucosa of the two organs over the posterior half of each orifice; the diameter of the lumen of the ureter did not exceed sixty millimetres. Finally, two rows of similar sutures were placed so as to unite anteriorly the mucosa and the serosa respectively. Before closing the belly, the peripheric end of the ureter was ligated with silk, and a drain of salol gauze was introduced so as to drain the cavity that had been stripped up. The

after-healing was uncomplicated. The urine ceased to escape by the vagina, and collected in the rectum without causing any inconvenience to the patient, who gets rid of it three or four times a day by stools of liquid consistence, composed of urine mixed with fæcal material, Her health is still perfect four months after the operation. M. Chaput recognized the objection to his procedure in the possibilities of ascending infection that may occur, but thinks that, as long as the flow of urine is free, and the intestinal mucous membrane is healthy, such infection is unlikely. He further adds that if it does supervene, nephrectomy can then be resorted to.

M. Bazy questions whether in this case a more physiological implantation might not have been done, so as to cause the ureter to empty into the bladder itself. He suggests the possibility in some cases of opening the bladder above the pubis, introducing a catheter into the ureter as far as the seat of the fistula and incising the ureter, beginning at its vesical orifice. If the ureter is not completely obliterated, only contracted, a fine strand introduced into its interior will conduct to that portion of the ureter above the stricture. The strictured portion may now be incised, after which the borders of the ureteral incision should be sutured to the borders of the incision in the vesical mucosa, so as to prevent renewed constriction. If the ureter is obliterated, an incision in the known direction of the ureter ought to strike its dilated portion that exists above the fistulous orifice. Should it not be found, the peritoneal cavity above the bladder could be opened, the ureter sought for, freed and implanted into the bladder at the nearest point.

M. Bazy does not reject wholly intestinal implantation of the ureter, but thinks that the method is worthy of trial in cases in which it is desirable to turn the urine away from the bladder, and in cases in which the ureteral fistula is situated high up. If, however, experience shall show that infection of the kidney is inevitable, after such implantations, immediate sacrifice of the kidney should rather be made.

M. Routier, in further discussing this subject, reported a case of

ureteral fistula resulting from injury to the ureter inflicted in the course of a vaginal hysterectomy done for the relief of salpingitis. A plastic operation for its relief failed, and then nephrectomy was done. In the removed kidney three infarcts in the cortical substance were found, together with pus in the pelvis. This operation cured the fistula, but the ureter is still painful.—*Bulletin et Mémoir de la Société de Chirurgie de Paris*, tome XIX, 1893, No. 5, p. 309.

IV. Uretero-vaginal Fistula Following Vaginal Hysterectomy for Carcinoma. By L. H. DUNNING, M.D. (Indianapolis). The author reports a case in which a ureter was injured while a carcinomatous nodule, remaining in the folds of the broad ligament after the uterus had been extirpated, was being enucleated. Five weeks later, obstructive symptoms having developed from cicatricial contraction about the ureteral opening, and the patient being morbidly sensitive to the existence of the fistula, the corresponding kidney was removed by a lumbar incision. An uncomplicated recovery followed. A later recurrence of the carcinoma is, however, already discoverable.

The author has collected from literature records of eight cases of this accident, and by personal inquiry has learned of four more in addition to his own. He refers, also, to reports of ten other cases in foreign literature. To these he adds, also, references to twenty-two cases of uretero-vaginal fistula connected with parturition. Of this entire number of cases, in thirty-five, operations for their relief were done: in twelve successful plastic operations were done, one to five operations in individual cases having been required. In eight cases plastic operations were unsuccessful. Seven were relieved by kolpokleisis, some of them after many operations. There were eight cases of lumbar nephrectomy, with one death. In ten cases renal symptoms occurred after the attempt to close the fistula. As the result of a study of the subject the author formulates the following conclusions:

(1) Injury of the ureter during a vaginal hysterectomy is liable to occur in the practice of skilful operators.

(2) It is more likely to occur when there is a broad ligament infiltration, or when there has been parametric inflammation, with adhesions.

(3) Whether the use of forceps and clamps more frequently results in such injury and fistula than when ligatures are employed has not been determined, but such is probable.

(4) In the five new cases the injury did not seem to have an unfavorable influence upon the immediate recovery of the patient. More observations are needed upon this point.

(5) In the case of resulting ureteral fistula, disease of the corresponding kidney is prone, sooner or later, to appear, whether the fistulous opening be into the vagina or upon the surface of the body.

(6) Operations for the closure of uretero-vaginal fistula, so that the urine will have an unobstructed and uninterrupted flow into the bladder, should, in proper cases, be employed.

(7) The operations of Parvin, St. Simon, Bandl, Landau and Gerde have this end in view, and should be employed in suitable cases if the kidney is healthy.

(8) Kolpokleisis, either partial or complete, leaves an artificial receptacle for the urine, walled in by tissue, in which we fear the speedy return of cancer; hence it is of doubtful utility.

(9) Nephrectomy is a justifiable procedure in uretero-vaginal fistula when there is obstruction to a free flow of the urine into the vagina that cannot be overcome by dilatation of the fistulous opening, in case of failure of plastic operations, and when the corresponding kidney is markedly diseased.—*Annals of Gynæcology and Pædiatry*, August, 1893.

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